

Remarks

Entry of the amendments, reconsideration of the application, as amended, and allowance of all pending claims are respectfully requested. After entry of the amendments, claims 1-9, 11-29, 31-51, and 53-62 remain pending.

With the above amendments to the specification, applicants have corrected an error in the specification that came to light during prosecution of the application. In particular, applicants have amended the specification to indicate that the logic runs in an application and not in the operating system. Support for this amendment can be found, for instance, in paragraphs 0023-0025, pages 7-8 of applicants' specification. In those paragraphs, information and variables are discussed that are known and used by applications and not the operating system. For instance, paragraph 0024 discusses information available to an application. Further, paragraph 0025 discusses variables, such as TCP_MAXSEG, that are only known to applications. Thus, applicants respectfully submit that there is support for the amendments, and request that the amendments to the specification be entered.

Further, with the claim amendments, applicants are clarifying language, further defining the environment as a clustered environment, and are indicating that the setting of one or more parameters of a socket is based on the number of remote sockets to be opened, as well as other information relating to the current configuration of the clustered environment. Support for these amendments can be found throughout the specification (e.g., paragraph 0002, page 1; paragraph 0018, page 5; paragraph 0024, page 7; paragraph 0034, page 11). Thus, the addition of new matter has been avoided.

In the Office Action dated October 27, 2003, claims 16-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. In particular, it is stated that "it is unclear to the Examiner which node is being referenced as "the node" since two different nodes are mentioned in the preceding portion of the claim." Without acquiescing to this rejection, applicants have amended claim 16 to clarify the node. In particular, "a node" has been replaced with "one node" to further distinguish between the one node and the another node. Based on this amendment, applicants respectfully request withdrawal of the §112 rejection.

Moreover, in the Office Action, claims 1, 3-12, 21, 23-32, 43, 45-54 are rejected under 35 U.S.C. 102(b) as being anticipated by a paper entitled "Automatic TCP Buffer Tuning" by Mathis et al. (hereinafter "Mathis"); claims 2, 20, 22, 40-42, 44 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathis in view of Gupta et al. (U.S. Patent No. 6,405,252); claims 13-15, 33-35 and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathis in view of Eckley et al. (U.S. Patent No. 6,163,797); and claims 16-19, 36-39 and 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathis in view of Braddy (U.S. Patent No. 6,304,967). Applicants respectfully, but most strenuously, traverse these rejections to any extent deemed applicable to the amended claims.

In one aspect of applicants' invention, sockets are dynamically optimized for clustered computing environments. To optimize a socket in such an environment, application specific information, such as the number of remote sockets to be opened, as well as information relating to the current configuration of the clustered environment, are utilized to determine the optimal socket tuning needed for efficient internet protocol traffic.

As one example, applicants claim a method of tuning sockets of a clustered computing environment (e.g., independent claim 1). The method includes, for instance, obtaining, by an application of the clustered computing environment, a value indicating a number of remote sockets to be opened; dynamically determining information relating to a current configuration of the clustered computing environment; and setting one or more parameters of a socket of the clustered computing environment based on the dynamically determined information and the obtained value. Thus, in applicants' claimed invention, the environment is a clustered environment, and a value indicating the number of remote sockets to be opened is used to set one or more parameters of a socket. This is very different from the teachings of Mathis.

For instance, Mathis does not describe, teach or suggest obtaining by an application of a clustered computing environment a value indicating a number of remote sockets to be opened. Mathis does not know the number of remote sockets to be opened, cannot determine the number of remote sockets to be opened, and does not teach or suggest that an application obtains the number of remote sockets to be opened. In fact, Mathis teaches that an application has no information useful in tuning buffers. It is explicitly stated in Mathis: "Applications have no

information about network congestion or kernel memory availability to make informed calculations of optimal buffer sizes and should not be burdened by lower layers.” (Section 1.3, last paragraph, page 316.) Instead, in Mathis, it is the operating system that performs the tuning using information known to the operating system, which does not include the number of remote sockets to be opened.

In applicants’ invention, the number of remote sockets to be opened can be obtained by an application because of the environment in which the application is running. In a clustered environment, information is available that would otherwise be unavailable in non-clustered environments. For instance, the number of remote sockets can be obtained by an application, since the application is aware of its environment, including the number of sockets on other operating systems in the environment. This information is not available to an operating system, but is available to an application of the environment. Thus, applicants’ invention includes using this information in tuning. Mathis does not use this information because it is unknown to Mathis.

It is indicated in the Office Action that the language “the number of remote sockets to be opened” is taught in paragraph 2 of section 1.3 of Mathis. Applicants respectfully submit that the language at paragraph 2, section 1.3 of Mathis does not teach or suggest applicants’ claimed feature of obtaining, by an application of the clustered computing environment, a value indicating a number of remote sockets to be opened. First, there is no teaching in Mathis of providing a value that indicates the number of remote sockets. It just states in Mathis that the number of concurrent connections that can exist is limited, but it does not say what that number is. There is no teaching or suggestion in Mathis of how to determine the number of remote sockets. Further, there is no teaching or suggestion in Mathis of obtaining the number of remote sockets by an application. In contrast, it is explicitly taught by Mathis that the applications do not have any valuable tuning information and should not be bothered. Yet further, the environment in Mathis is a non-clustered environment and not a clustered environment, as claimed by applicants. Thus, Mathis does not have access to the same information as applicants’ invention. For all of these reasons, applicants respectfully submit that Mathis fails to describe, teach or suggest applicants’ claimed feature of obtaining, by an application of the clustered

computing environment, a value indicating a number of remote sockets to be opened. Thus, applicants respectfully request withdrawal of the §102 rejection.

Yet further, applicants respectfully submit that Mathis does not describe, teach or suggest applicants' claimed feature of setting one or more parameters of a socket based...on this obtained value. Again, in Mathis, there is no description, teaching or suggestion of determining the number of remote sockets to be opened. Since this value is unknown, it follows that this value is not used in setting one or more parameters of a socket. Thus, applicants respectfully submit that Mathis fails to describe, teach or suggest applicants' claimed feature of setting one or more parameters of a socket of said clustered computing environment based on the dynamically determined information and the obtained value.

For all of the above reasons, applicants respectfully submit that independent claim 1, as well as independent claims 21, 41 and 43 are patentable over Mathis. Further, the other independent claims and the dependent claims are patentable for the same reasons as discussed above, as well as for their own additional features. The other cited references do not overcome the deficiencies of Mathis. For all of the above reasons, applicants respectfully request an indication of allowability for all pending claims.

Should the Examiner wish to discuss this case with applicants' attorney, please contact the undersigned at the below listed number.

Respectfully submitted,

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